

Remarks

The Applicant gratefully acknowledges the Examiner's participation in a telephone interview. As discussed in the interview, the Applicant notes that the Office Action does not include an initialed copy of Form PTO-1449 that acknowledges receipt of the Supplemental Information Disclosure Statement mailed on April 24, 2002. Enclosed is a copy of the Supplemental Information Disclosure Statement originally filed April 24, 2002, a copy of the certificate of mailing, a copy of the acknowledgement card received by the USPTO on April 29, 2002 and copies of the references cited therein. The Applicant respectfully requests the Examiner's acknowledgement of receipt of the Supplemental Information Disclosure Statement and recognition of the original filing date.

Claims 1-6 are pending in the application. Claims 1 and 6 have been amended. Claims 7-18 have been added to the application. Reconsideration of the application is respectfully requested for the reasons set forth herein.

1. The Examiner has objected to Figure 2 for failing to show insulative and conductive materials in appropriate cross-hatching. A proposed drawing correction of Figure 2 has been submitted with corrections shown in red. Upon approval by the Examiner, a replacement formal drawing of Figure 2 will be submitted.

2. The Examiner has rejected claim 1 under 35 U.S.C. 102(b) as being anticipated by Siems et al. (US Patent No. 5,470,253). The Examiner stated that Siems et al. discloses an electrical cable having two differential transmission signal wires 48 having respective core wires 50 each

with an outer insulative covering 52. A signal drain wire 49 disposed adjacent to the differential transmission signal wires 48 and an equal distance from each of the differential transmission signal wires. A shielding covering 56 that surrounds the differential transmission signal wires 48 and signal drain wire 49. An exposed area at a terminal part of the electric cable. A heat-shrink tube 60 covering an end portion of the shielding covering, except for a front end portion of the differential transmission signal wires 48 and drain wire 49 so that mutual distances between the differential transmission signal wires 48 and the signal drain wire 49 inside the electrical cable are maintained. The Examiner, therefore, concluded that Siems et al. anticipated claim 1.

Siems et al. fails to teach or suggest all of the claim limitations of claim 1. Claim 1 has been amended to correct antecedent basis and to clarify the claim limitation that a heat-shrink tube covers a portion of the shielding covering and exposed area, except for an end portion of the differential transmission signal wires and drain wire, so that equal distances between the differential transmission signal wires and the signal drain wire inside the shielding covering are maintained in the exposed area by the heat-shrink tube. As shown in Figure 3, Siems et al. teaches a multi-conductor connector 36 having two connector elements 48 and a shield drain wire 49 bundled within a shielded cable 56. The tube connector elements 48 and the shielded drain wire 49 include like wire cores 50 insulated by a plastic jacket or shielding 52. Terminals 54 are provided at ends of the connector elements 48 and the shield drain wire 49. The shielded cable 56 contains and protects the connector elements 48 and shield drain wire 49 and terminates at a copper shield 58. The terminal ends of the shield cable 56 and copper shield 58 are further enclosed by protective tubing 60. The tubing 60 protects the termination of the connector elements 48 and the shield drain wire 49 at the copper shield 58. As discussed in the interview,

the tubing 60 does not maintain the shield drain wire 49 an equal distance from the connector elements 48, but merely covers the termination point of the shielded cable 56. Because Siems et al. fails to teach a heat-shrink tube that maintains the signal drain wire in a particular orientation in respect to the differential transmission wires, Siems et al. does not anticipate all of the claim limitations of claim 1. The rejection of claim 1 under 35 U.S.C. 102(b) is respectfully overcome.

3. The Examiner has rejected claim 6 under 35 U.S.C. 102(b) as being anticipated by Siems et al. (US Patent No. 5,470,253). The Examiner stated that the method for terminating the cable is inherent to the structure of the terminated cable. The Examiner, therefore, concluded that Siems et al. anticipated claim 6.

Siems et al. neither teaches nor suggests all of the claim limitations of claim 6. As discussed in the interview, claim 6 has been amended for clarity and to include the claim limitation of covering an area around the two differential transmission signal wires and the drain wire that are exposed by stripping with a heat-shrink tube to maintain the signal drain wire at an equal distance from the two differential transmission signal wires to maintain impedance of the stripped wires. Seims at al. teaches a wiring system for use with an engine or power module having alpha-numeric indicia for readily determining electrical connections for an electrical connector. The alpha-numeric indicia are shown on a multi-conductor connector 36 that has two connector elements 48 and a shield drain wire 49 bundled within a shielded cable 56 that terminates at a copper shield 58. The terminal ends of the shielded cable 56 and copper shield 58 are enclosed by a protective tubing 60. Seims et al. does not teach or suggest a method of maintaining the signal drain wire at an equal distance from the two differential transmission

signal wires to maintain the differential impedance of the stripped wires, but teaches a method for marking various connectors with marking indicia for ease in making electrical connections. Because Siems et al. does not teach or suggest the method of claim 6, Siems et al. does not teach or suggest all of the claim limitations of claim 6. The rejection of claim 6 under 35 U.S.C. 102(b) is respectfully overcome.

4. The Examiner has rejected claims 2-5 under 35 U.S.C. 103(a) as being unpatentable over Siems et al. (US Patent No. 5,470,253) as applied to claim 1, as described above. Regarding claims 2-4, the Examiner stated that Siems et al. discloses the invention substantially as claimed, but does not specifically disclose the shielding and insulating materials used in the cable. The Examiner, therefore, concluded that it would have been obvious to one having ordinary skill in the art at the time the invention was made to use the claimed materials since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. Regarding claim 5, the Examiner stated that Siems et al. discloses the drain wire being located in a position that is separated from the core wires of the differential transmission signal wires by a distance corresponding roughly to the thickness of the outer insulating covering of the core wires. The Examiner, therefore, concluded that claims 2-5 were obvious in view of Siems et al.

Claims 2-5 depend from independent claim 1. As discussed above, Siems et al. does not teach or suggest all of the claim limitations of claim 1. Specifically, Siems et al. does not teach or suggest a heat-shrink tube covering a portion of the shielding covering and exposed area, except for an end portion of the differential transmission signal wires and drain wire so that equal

distances between the differential transmission signal wires and the signal drain wire inside the shielding covering are maintained in the exposed area by the heat-shrink tube. Because Seims et al. fails to teach or suggest all of the claim limitations of claim 1, Seims et al. combined with the knowledge of one of ordinary skill in the art fails to teach or suggest all of the claim limitations of dependant claims 2-5. The Examiner has therefore failed to set forth a prima facie case of obviousness, and the rejection of claims 2-5 under 35 U.S.C. 103(a) is respectfully overcome.

5. New claims 7-18 have been added to the application. The Applicant respectfully requests the examination of new claims 7-18. Claims 7-13 are considered to be in condition for allowance because they depend upon independent claim 1, which is considered to be in condition for allowance. Claims 14 and 15 are considered to be in condition for allowance because they depend upon independent claim 6, which is considered to be in condition for allowance. Claims 16-18 are considered to be in condition for allowance because the prior art fails to teach or suggest an electrical cable having a signal drain wire and differential transmission signal wires with a differential impedance and a tube positioned over a portion of the electrical cable and a portion of the outer surface of a stripped portion of the wires that maintains the differential impedance of the wires having an exposed outer surface.

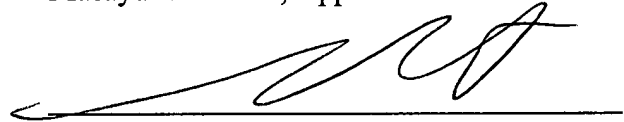
In view of the amendments presented herein, Applicant believes this application to be in condition for allowance. Reconsideration and passage to issue is respectfully requested.

Please charge any additional fees associated with this application to Deposit Order

Account No. 501581.

Respectfully submitted,

Masayuki Aizawa, Applicant

A handwritten signature in black ink, appearing to read 'SA', is written over a horizontal line.

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Version with Markings to Show Changes Made

1. (Amended) An electrical cable for termination with an electrical component, the electrical cable comprising:

two differential transmission signal wires having respective core wires each with an outer insulating covering;

a signal drain wire disposed adjacent to the differential transmission signal wires at an equal distance from each of the differential transmission signal wires;

a shielding covering that surrounds the differential transmission signal wires and single drain wire;

an exposed area formed by stripping the shielding covering around the two differential transmission signal wires and the drain wire at a terminal part of the electrical cable;

a heat-shrink tube covering a[n end] portion of the shielding covering and exposed area, except for a front end portion of the differential transmission signal wires and drain wire, so that the equal distances between the differential transmission signal wires and the signal drain wire inside the [electrical cable] shielding covering are maintained in the exposed area by the heat-shrink tube.

6. (Amended) A method for terminating an electrical cable, the method comprising [the steps of]:

stripping a shielding covering over a given length from an end portion of two differential transmission signal wires and a drain wire at [the] a terminal part of the electrical cable;

covering an area around the two differential transmission signal wires and the drain wire that are exposed by stripping with a heat-shrink tube to maintain the signal drain wire at an equal distance from the two differential transmission signal wires to maintain impedance of the stripped wires[together, the heat-shrink tube covering an end of the shielding covering]; and

exposing the front end portions exposed by the stripping of the differential transmission signal wires and drain wire[, whereby the heat-shrink tube cooperates with the differential transmission signal wires and the drain wire in the covered area to maintain mutual distances between the differential transmission signal wires and the drain wire].

Add new claims 7-18.